

WHAT IS CLAIMED IS:

1 1. A system for analog-to-digital signal conversion, the system comprising:
2 a plurality of input terminals;
3 logic configured to associate a first request with a changeable set of the input
4 terminals, a second request with a changeable one of the input terminals, and a third request with
5 a fixed one of the input terminals;
6 logic configured to receive one of the first, second, and third requests; and
7 a converter coupled to the input terminals and the logic configured to associate
8 and receive, the converter configured to convert an analog signal presented at one of the input
9 terminals into a digital value based on a received one of the first, second, and third requests.

1 2. The system of claim 1, wherein when one of the second and third requests is
2 received while converting a plurality of analog signals presented at the changeable set of the
3 input terminals, the system comprises:
4 logic configured to determine whether the changeable set of the input terminals
5 includes the one of the changeable and fixed input terminals associated with the received request.

1 3. The system of claim 2, wherein when the changeable set of the input terminals
2 includes the one of the changeable and fixed input terminals associated with the received request,
3 the system comprises:
4 logic configured to acknowledge a completion of the received request when the
5 converting of the plurality of analog signals is complete.

1 4. The system of claim 2, wherein when the changeable set of the input terminals
2 includes the one of the changeable and fixed input terminals associated with the received request,
3 the system comprises:

4 logic configured to determine a priority between the converting of the plurality of
5 analog signals and the received request.

1 5. The system of claim 4, wherein when the converting of the plurality of analog
2 signals has the priority, the system comprises:

3 logic configured to acknowledge a completion of the received request when the
4 converting of the plurality of analog signals is complete.

1 6. The system of claim 4, wherein when the received request has the priority, the
2 system comprises:

3 logic configured to halt the converting of the plurality of analog signals;

4 logic configured to convert the analog signal presented at the one of the
5 changeable and fixed input terminals associated with the received request; and

6 logic configured to resume the converting of the plurality of analog signals.

1 7. The system of claim 2, wherein when the changeable set of the input terminals
2 does not include the one of the changeable and fixed input terminals associated with the received
3 request, the system comprises:

4 logic configured to determine a priority between the converting of the plurality of
5 analog signals and the received request.

1 8. The system of claim 7, wherein when the converting of the plurality of analog
2 signals has the priority, the system comprises:

3 logic configured to deny the received request.

1 9. The system of claim 7, wherein when the received request has the priority, the
2 system comprises:

3 logic configured to halt the converting of the plurality of analog signals;

4 logic configured to convert the analog signal presented at the one of the
5 changeable and fixed input terminals associated with the received request; and

6 logic configured to resume the converting of the plurality of analog signals.

1 10. A method for analog-to-digital signal conversion, the method comprising:

2 associating a first request with a changeable set of a plurality of input terminals, a
3 second request with a changeable one of the input terminals, and a third request with a fixed one
4 of the input terminals;

5 receiving one of the first, second, and third requests; and

6 converting an analog signal presented at one of the input terminals into a digital
7 value based on the received one of the first, second, and third requests.

1 11. The method of claim 10, wherein when one of the second and third requests is
2 received while converting a plurality of analog signals presented at the changeable set of the
3 input terminals, the method comprises:

4 determining whether the changeable set of the input terminals includes the one of
5 the changeable and fixed input terminals associated with the received request.

1 12. The method of claim 11, wherein when the changeable set of the input terminals
2 includes the one of the changeable and fixed input terminals associated with the received request,
3 the method comprises:

4 acknowledging a completion of the received request when the converting of the
5 plurality of analog signals is complete.

1 13. The method of claim 11, wherein when the changeable set of the input terminals
2 includes the one of the changeable and fixed input terminals associated with the received request,
3 the method comprises:

4 determining a priority between the converting of the plurality of analog signals
5 and the received request.

1 14. The method of claim 13, wherein when the converting of the plurality of analog
2 signals has the priority, the method comprises:

3 acknowledging a completion of the received request when the converting of the
4 plurality of analog signals is complete.

1 15. The method of claim 13, wherein when the received request has the priority, the
2 method comprises:

3 halting the converting of the plurality of analog signals;
4 converting the analog signal presented at the one of the changeable and fixed
5 input terminals associated with the received request; and
6 resuming the converting of the plurality of analog signals.

1 16. The method of claim 11, wherein when the changeable set of the input terminals
2 does not include the one of the changeable and fixed input terminals associated with the received
3 request, the method comprises:

4 determining a priority between the converting of the plurality of analog signals
5 and the received request.

1 17. The method of claim 16, wherein when the converting of the plurality of analog
2 signals has the priority, the method comprises:

3 denying the received request.

1 18. The method of claim 16, wherein when the received request has the priority, the
2 method comprises:

3 halting the converting of the plurality of analog signals;

4 converting the analog signal presented at the one of the changeable and fixed
5 input terminals associated with the received request; and

6 resuming the converting of the plurality of analog signals.

1 19. A computer readable medium containing a computer program for analog-to-
2 digital signal conversion, wherein the computer program comprises executable instructions for:

3 associating a first request with a changeable set of a plurality of input terminals, a
4 second request with a changeable one of the input terminals, and a third request with a fixed one
5 of the input terminals;

6 receiving one of the first, second, and third requests; and

7 converting an analog signal presented at one of the input terminals into a digital
8 value based on the received one of the first, second, and third requests.

1 20. The computer readable medium of claim 19, wherein when one of the second and
2 third requests is received while converting a plurality of analog signals presented at the
3 changeable set of the input terminals, the computer program comprises executable instructions
4 for:

5 determining whether the changeable set of the input terminals includes the one of
6 the changeable and fixed input terminals associated with the received request.

1 21. A system for analog-to-digital signal conversion, the system comprising:
2 a plurality of input terminals;
3 logic configured to associate a first request with a first conversion mode and a
4 second request with a second conversion mode;
5 logic configured to receive the first and second requests; and
6 a converter coupled to the input terminals and the logic configured to associate
7 and receive, the converter configured to convert an analog signal presented at one of the input
8 terminals into a digital value in one of the first conversion mode when a first request is received,
9 the second conversion mode when a second request is received and the converter is idle, and a
10 third conversion mode when a second request is received while the converter is converting an
11 analog signal in the first conversion mode.

1 22. The system of claim 21, wherein the first conversion mode corresponds to
2 a sweep conversion of an analog signal presented at each input terminal of a set of the input
3 terminals in succession.

1 23. The system of claim 21, wherein the second conversion mode corresponds
2 to a single conversion of an analog signal presented at one of the input terminals.

1 24. The system of claim 21, wherein the third conversion mode corresponds to
2 a repeated conversion of an analog signal presented at one of the input terminals.